

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks. Claims 1-6 are currently pending, with Claims 1, 5 and 6 being the only independent claims. None of the claims have been amended by this Amendment, although the claims of issue have been reproduced here for the Examiner's convenience.

The Official Action rejected Claims 1-4, and 6 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Number 4,418,841 to *Eckstein* in view of U.S. Patent Number 5,536,542 to *Gillespie et al.*

Independent Claim 1 recites a packaging material having an interior comprising at least a thermoplastic material outermost layer, a paper substrate layer, a barrier layer, and a thermoplastic layer. The thermoplastic layer contains at least a linear low density polyethylene which has a narrow molecular weight distribution and at least an average density of 0.900 g/ml - 0.915 g/ml, a peak melting point of 88°C to 103°C, a melt flow index of 5 dg/min - 20 dg/min, a swelling ratio of 1.4 -1.6, and a layer thickness of 20-50 micrometers.

Eckstein discloses a multiple layer polymeric-based sheet structure having a heat sealable layer, a first adhesive layer, a barrier layer, a second adhesive layer, a layer of oriented polypropylene, and a polyethylene layer. The polyethylene layer 32 of *Eckstein* has a thickness of 0.7 mil -3.0 mil, or about 7.62 -76.2 micrometers.

Gillespie et al. discloses a method of sealing two opposing extrusion coated polyethylene laminate surfaces thereby welding the surfaces to effect a heat seal

and using polyethylene having a melt index of 1 dg/min - 4 dg/min at 190°C, an annealed density of 0.92 g/cc - 0.93 g/cc, a peak melting point of 106.9°C, and a swell ratio of 1.2 - 1.3.

It should be noted that "to establish a *prima facie* obviousness of the claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP § 2143.03. Applicants submit that many of the features of the claimed invention are not disclosed by the prior art.

For example, *Eckstein* fails to disclose packaging material including an innermost thermoplastic layer containing at least a linear low density polyethylene having an average density of 0.900 g/ml - 0.915 g/ml, a peak melting point of 88 °C to 103°C, a melt flow index of 5 dg/min - 20 dg/min, and a swelling ratio of 1.4 -1.6. The Examiner made note of such deficiencies at page 2, lines 3-5 of the Official Action, but observes that such values are obvious in view of *Gillespie et al.*

However, *Gillespie et al.* fails to disclose the claimed range of densities, melt flow indexes, and swelling ratios. More importantly, *Gillespie et al.* actually teaches away from polyethylene having such claimed characteristics. For example, *Gillespie et al.* fails to disclose the claimed average density of 0.900 g/ml - 0.915 g/ml. Instead, *Gillespie et al.* describes an annealed density of 0.925 - 0.927 g/cc. Quite significantly, *Gillespie et al.* explicitly states in column 3, lines 16-19 that annealed polyethylene with a density much below 0.92 g/cc tends to exhibit high coefficients of friction which cause processing problems during carton converting operations. Thus,

Gillespie et al. specifically states that one should not use an annealed polyethylene having an average density as recited in Claim 1.

Further, *Gillespie et al.* fails to disclose the claimed melt flow index of 5 dg/min - 20 dg/min. In fact, *Gillespie et al.* explicitly states that a melt index above 4 dg/min is undesirable because it prevents the polyethylene from being extrusion coatable. See column 2, lines 64-67.

In addition, *Gillespie et al.* fails to disclose a swelling ratio of 1.4 -1.6, and instead explicitly states that a swelling ratio greater than 1.3 is undesirable because it prevents extrusion coating.

As *Gillespie et al.* specifically discloses that it is disadvantageous to use polyethylene having a swelling ratio greater than 1.3, a melt flow index above 4 dg/min and an annealed density below 0.92 g/cc, it would not have been obvious based on the disclosure in *Gillespie et al.* to modify the material described in *Eckstein* to include polyethylene having the claimed ranges recited in Claims 1.

Claim 6 recites a paper packaging container formed from a packaging material which comprises at least an outside thermoplastic material layer, a paper substrate layer and an inside thermoplastic material layer. The inside thermoplastic material layer contains at least a linear low density polyethylene having an average density of 0.910 g/ml - 0.930 g/ml, a peak melting point of 115°C or more by differential scanning calorimetry, a melt flow index of 5 dg/min - 15 dg/min, and a swelling ratio of 1.45 -1.55.

Gillespie et al. fails to disclose a melt flow index of 5-15 dg/min and a swelling ratio of 1.45-1.55. In addition, as disclosed above, *Gillespie et al.* explicitly teaches away from these values. For example, *Gillespie et al.* discloses that polyethylene having a melt index above 4 dg/min should be avoided because it does not permit the polyethylene to be extrusion coatable, and polyethylene having a swelling ratio above 1.3 does not permit extrusion coating of the polyethylene. Thus, as the claimed invention defines polyethylene having a melt flow index of 5-15 dg/min and a swelling ratio of 1.45-1.55, it would not have been obvious to extrude polyethylene according to the claimed invention.

The Official Action argues that even though such values are not specifically disclosed, the claimed density, melt flow index and swelling ratio would have been readily determined through routine optimization by one having ordinary skill in the art depending on the desired end use of the product. Applicants respectfully assert otherwise.

Eckstein discloses a method of extrusion coating polyethylene, and *Gillespie et al.* discloses a method of joining two extrusion coated polyethylene laminate surfaces. Both methods involve extruding polyethylene. *Gillespie et al.* specifically states that it is undesirable to extrude polyethylene having the claimed values of density, melt flow index, and swell ratio. Thus, one seeking to "optimize" these values as suggested in the Official Action would not have been directed to do that which is defined in Claims 1 and 6 because this "optimization" is directly contrary to what *Gillespie et al.* describes.

Thus, not only does the combination of *Eckstein* and *Gillespie et al.* fail to disclose all features of the claimed invention, but the combination specifically teaches away from extruding polyethylene having the claimed values for density, melt index and swell ratio. Thus, Applicants respectfully submit that independent Claims 1 and 6 are patentably distinct over *Eckstein* in view of *Gillespie et al.*, and that dependent Claims 2-4 are patentable at least by virtue of their dependence from independent Claims 1 and 6.

The Official Action also rejected Claim 5 under 35 U.S.C. §103(a) as being unpatentable over *Eckstein* in view of *Gillespie et al.* and further in view of U.S. Patent Number 5,536,542 to *Ikenoya et al.* Independent Claim 5 recites a paper packaging container having at least a thermoplastic material outermost layer, a paper substrate layer, a barrier layer and a thermoplastic material innermost layer. Independent Claim 5 also recites a strip tape having a sealing surface layer comprising a linear low density polyethylene having an average density of 0.900 g/ml - 0.915 g/ml, a peak melting point of 88°C to 103°C, a melt flow index of 5 dg/min - 20 dg/min, and a swelling ratio of at least 1.4 -1.6.

Ikenoya et al. discloses a packaging container having enhanced sealing performance. The packaging container includes a packaging material, an outside strip and a strip tape 25. The strip tape 25 adheres to the inner surface of the packaging container along a longitudinal sealing portion. The strip tape 25 prevents entry of air into the packaging container from a side edge of the packing material. The strip tape 25 also prevents liquid food from permeating a paper substrate 13.

The applicants respectfully submit that not all features recited in Claim 5 are disclosed by the combination of *Eckstein*, *Gillespie et al.* and *Ikenoya et al.* For example, Claim 5 recites at least a sealing-surface layer of the strip tape contains a linear low density polyethylene having an average density of 0.900 g/ml - 0.915 g/ml, a peak melting point of 88 °C to 103°C, a melt flow index of 5 dg/min - 20 dg/min, and a swelling ratio of at least 1.4 -1.6. *Ikenoya et al.* fails to disclose strip tape having a sealing surface containing polyethylene, but rather discloses that the strip-tape is made of a layer of a modified polyester, an adhesive layer, a layer of a stretched polyester, an adhesive layer, and a layer of modified polyester. See column 5, lines 35-40. Also, as noted above, neither *Eckstein* nor *Gillespie et al.* discloses polyethylene having the claimed ranges of values for density, melt flow index, peak melting temperature and swelling ratio for polyethylene. Further, neither *Eckstein* nor *Gillespie et al.* discloses that a leading-surface layer of a strip tape which covers a discontinuous section of a thermoplastic material innermost layer between edges of the packaging material in a liquid tight manner should possess the average density, melt flow index and swelling ratio set forth in Claim 5. Thus, even if one were somehow motivated to combine the disclosures in *Ikenoya et al.*, *Eckstein* and *Gillespie et al.* in the manner suggested in the Official Action, the result would not be that which is defined in Claim 5 as the invention. For at least these reasons, Applicants respectfully submit that Claim 5 is patentable over *Eckstein* in view of *Gillespie et al.* and *Ikenoya et al.*, and respectfully request that the rejection be withdrawn.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

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By: Matthew L. Schneider
Matthew L. Schneider
Registration No. 32,814

P. O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620